X00A00
Public Debt

Operating Budget Data

($ in Thousands)

	FY 17 Actual	FY 18 Working	FY 19 Allowance	FY 18-19 Change	% Change Prior Year
General Fund	$259,395	$259,649	$289,000	$29,351	11.3%
Adjustments	0	0	0	0	
Adjusted General Fund	**$259,395**	**$259,649**	**$289,000**	**$29,351**	**11.3%**
Special Fund	919,800	975,867	1,004,000	28,133	2.9%
Adjustments	0	0	0	0	
Adjusted Special Fund	**$919,800**	**$975,867**	**$1,004,000**	**$28,133**	**2.9%**
Federal Fund	11,533	11,539	12,831	1,292	11.2%
Adjustments	0	0	0	0	
Adjusted Federal Fund	**$11,533**	**$11,539**	**$12,831**	**$1,292**	**11.2%**
Adjusted Grand Total	**$1,190,728**	**$1,247,055**	**$1,305,831**	**$58,776**	**4.7%**

Note: FY 18 Working includes targeted reversions, deficiencies, and across-the-board reductions. FY 19 Allowance includes contingent reductions and cost-of-living adjustments.

- Fiscal 2018 debt service costs are $12 million less than budgeted. Actual costs for the August 2017 sale of new bonds were $9 million less than projected, and the refunding bond sale reduced debt service costs by an additional $3 million.

- Total debt service costs increase by $59 million (4.7%) in fiscal 2019. Costs increase by almost $66 million after adjusting for the fiscal 2018 savings.

Note: Numbers may not sum to total due to rounding.

For further information contact: Patrick S. Frank Phone: (410) 946-5530

Analysis in Brief

Major Trends

Property Tax Revenues Remain Steady and Premiums Continue to Offset General Fund Appropriations: General obligation (GO) bond debt service is supported by the Annuity Bond Fund. The primary source of revenues is State property taxes, which provide funds sufficient to support 63.8% of GO debt service costs in fiscal 2019. The remaining costs are supported by general funds, bond sale premiums, and other minor revenues. From fiscal 2018 to 2023, average annual debt service costs are projected to increase by 3.0%, while average annual State property tax revenues are projected to increase by 2.1%.

Issues

Capacity Is Sufficient for Modest Increases in Authorizations: The Capital Debt Affordability Committee recommendation is to continue to limit GO bond authorizations to $995 million. In 2017, the Spending Affordability Committee (SAC) recommended that GO bond authorizations be increased by $80 million to a level of $1,075 million in fiscal 2019 and that subsequent increases be limited to 1%. The SAC level of authorization is affordable. It expands debt at a level that is less than the revenues that support the debt.

GO Bonds Continue to Sell at a Premium: The State has been consistently realizing GO bond sale premiums since 2001. Current market conditions are consistent with subsequent bond issuances selling at a premium. The Governor's proposed budget assumed no fiscal 2019 bond premiums. **The Department of Legislative Services (DLS) recommends that the fiscal 2019 budget forecast anticipate $55 million of bond sale premiums. In recognition of bond market volatility, DLS recommended that projected bond sale premiums be classified as targeted reversions. It is recommended that the General Assembly add budget bill language requiring that all available special and federal funds are expended before general funds are expended and that unspent general funds revert to the General Fund. The language should also authorize a budget amendment to add any bond premium realized in fiscal 2018 and 2019 in excess of the amount assumed in the allowance.**

Federal Tax Law Changes Are Expected to Increase Capital Program Costs: The federal Tax Cuts and Jobs Act was enacted in December 2017. This new law enacts broad changes to federal tax laws that were effective on January 1, 2018. The new law has some provisions that will impact GO bonds and the cost of the State's capital program. Specifically, there are three provisions that are expected to affect the State's GO bond program. In all cases, the effect is to increase costs. This issue examines the new law's impact on GO bonds supporting the State's capital program. **The State Treasurer should be prepared to brief the committees on the effect of federal tax law changes on capital costs.**

Accounting Changes to Leasing Standards Could Affect Debt Affordability: The Governmental Accounting Standards Board has updated accounting standards for capital leases. Rules have been issued, and it appears that changes in leasing will be effective beginning in fiscal 2020. New rules require government lessees to recognize a lease liability that exceeds 12 months. The new rules will increase the amount of capital leases, but it is unclear to what extent. Changes in lease accounting standards could affect State debt affordability. **It is recommended that the committees adopt narrative that requires State agencies to report on new accounting standards that affect State-supported leases in excess of 12 months that could have to be reported as capital leases.**

Operating Budget Recommended Actions

1. Add language requiring unspent general fund appropriations to be reverted to the General Fund if projected bond sale premiums are attained.

2. Add narrative requiring agencies to report on capital leases.

X00A00
Public Debt

Operating Budget Analysis

Program Description

The Public Debt program appropriates funds for general obligation (GO) bonds' debt service payments. This includes principal and interest payments. GO bonds support the State's general construction program, such as prisons, office buildings, higher education facilities, school construction, and mental health facilities. GO bonds do not pledge specific revenues but rather pledge the State's full faith and credit. Issuances include:

- tax-exempt bonds sold to institutional investors;
- tax-exempt bonds sold to retail investors;
- taxable bonds sold to institutional investors;
- Build America Bonds that were taxable bonds for which the State receives a direct subsidy from the federal government;
- Qualified Zone Academy Bonds (QZAB) that support specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies;
- Qualified School Construction Bonds that supported specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies; and
- Qualified Energy Conservation Bonds that are direct federal subsidy bonds that support energy efficiency capital expenditures in public buildings, renewable energy production, and other related projects.

GO bond debt service payments are supported by the Annuity Bond Fund (ABF). The ABF revenues include State property tax revenues; federal subsidies; bond sale premiums; and repayments from certain State agencies, subdivisions, and private organizations. General funds may subsidize debt service if these funds are insufficient.

The State usually issues tax-exempt GO bonds to institutional investors twice a year. Other bonds are issued as they become authorized, as needed (taxable), or as they are in demand (retail bonds). The goal is to minimize the bonds' debt service costs.

Property Tax Revenues Remain Steady and Premiums Continue to Offset General Fund Appropriations

Most of the revenues supporting GO bond debt service are derived from State property taxes. **Exhibit 1** shows that for fiscal 2019, State property taxes provide $829.3 million, which represents 63.8% of the appropriation. The Department of Budget and Management (DBM) projects that the March 2018 bond sale will realize a $59 million premium, increasing total fiscal 2018 premiums to $153.1 million. Even with bond premiums, the current State property tax rate (at $0.112 per $100 of assessable base) and the ABF balance are insufficient to fully fund debt service costs. To support debt service without raising State property taxes, the allowance includes $289 million in general fund appropriations.

Exhibit 1
Annuity Bond Fund Forecast
Fiscal 2017-2019 Allowance
($ in Thousands)

	2017 Expenditures	2018 Appropriation	2019 Allowance
ABF Activity			
Beginning Balance	$202,278	$155,846	$160,703[1]
Property Tax Receipts	773,128	806,300	829,320
Interest and Penalties on Property Taxes	2,244	2,240	2,240
Other Repayments and Receipts	234	181	181
Bond Premium	91,187	153,148	0
Transfer to Reserve	-155,846	-148,571	-722
ABF Special Fund Appropriations	**$913,224**	**$969,144**	**$991,722**
General Fund Appropriations	$259,395	$259,649	$289,000
Transfer Tax Special Fund Appropriations	6,575	6,735	7,059
Federal Fund Appropriations[2]	11,533	11,527	12,831
Legislative Appropriation	**$1,190,728**	**$1,247,055**	**$1,300,612**
Changes to the Fiscal 2017 Legislative Appropriation			
Savings from August 2017 Bond Sale	$0	-$12,132	$0
Projected Total Debt Service Expenditures	**$1,190,728**	**$1,234,923**	**$1,300,612**

ABF: Annuity Bond Fund

[1] Includes August 2017 bond sale savings.
[2] Fiscal 2019 federal funds do not include reductions attributable to sequestration.

Source: Department of Budget and Management; Department of Legislative Services

The exhibit also recognizes savings from the August 2017 bond sale. The State issued $550 million in new bonds and $792.8 million in refunding bonds. Fiscal 2018 debt service costs for the new bonds were $3.3 million less than projected, and the refunding bonds reduced fiscal 2018 debt service costs by an additional $9.1 million. After factoring other adjustments, fiscal 2018 debt service costs are reduced to $1,234.9 million, which is $12.1 million less than the legislative appropriation. In this analysis, the Department of Legislative Services (DLS) will use the adjusted appropriation, which totals $1,234.9 million as the fiscal 2018 debt service costs. The difference is added to the end of the fiscal 2018 fund balance, which reduces the fiscal 2019 general fund appropriation.

Exhibit 2 provides a breakdown of debt service costs projected for fiscal 2019. The allowance includes $1,264.1 million in debt service from bonds that have already been issued and $23.8.million in debt service from issuances projected in March 2018. Bonds sold in summer 2018 are estimated to require $12.8 million in debt service payments in fiscal 2019. Since the first debt service payment is due approximately six months after they are issued, bonds sold in fiscal 2019 after January 1 do not have any effect on fiscal 2019 debt service costs.

Exhibit 2
Fiscal 2019 Debt Service Costs
($ in Millions)

Type of Debt	Principal	Interest	Sinking Fund	Total
GO Bonds Sold to Institutional Investors	$753.7	$350.0	$0.0	$1,103.7
Retail Bonds	34.6	2.6	0.0	37.2
Taxable Bonds	29.3	2.4	0.0	31.8
Build America Bonds	52.5	25.3	0.0	77.8
Qualified Zone Academy Bonds	2.4	1.4	1.3	5.1
Qualified School Construction Bonds	0.0	2.0	6.4	8.3
Qualified Energy Conservation Bonds	0.0	0.3	0.0	0.3
Subtotal	***$872.5***	***$383.9***	***$7.7***	***$1,264.1***
Debt Issued After Allowance Submitted				
March 2018 Bond Sale	$0.0	$23.8	$0.0	$23.8
Summer 2018 Bond Sale	0.0	12.8	0.0	12.8
Subtotal	***$0.0***	***$36.5***	***$0.0***	***$36.5***
Total	**$872.5**	**$420.4**	**$7.7**	**$1,300.6**

GO: general obligation

Note: Numbers may not sum to total due to rounding.

Source: Comptroller's Office; Department of Budget and Management; Department of Legislative Services

Prior to fiscal 2001, State debt service was comprised of traditional GO bonds (tax-exempt debt issued to institutional investors). The exhibit identifies debt service payments attributable to the new kinds of debt and methods of issuance that have been added since 2001.

Effect of Federal Sequestration

The Budget Control Act (BCA) of 2011 included automatic across-the-board spending reductions if the U.S. Congress and the President failed to enact a Joint Select Committee bill by January 15, 2012. The bill was required to reduce the federal budget deficit by at least $1.2 trillion over 10 years. The U.S. Congress was unable to enact the bill, and the BCA required that automatic spending reductions, referred to as sequestration, take effect. A number of federal programs, such as Social Security and Medicaid, were exempt from these reductions. The Murray-Ryan Bipartisan Budget Act raised sequestration budget caps in federal fiscal 2014 and 2015 but also extended sequestration for two more years, from federal fiscal 2022 to 2023. Similarly, the Bipartisan Budget Act of 2015 raised caps in federal fiscal 2016 and 2017. The Act also extended sequestration to federal fiscal 2025.

Federal subsidies on State and local bonds are not deemed to be exempt from sequestration. Reductions to federal grants are also influenced by the timing of the transfer of the subsidy. **Exhibit 3** shows that sequestration reduces federal funds by approximately $800,000 to $900,000, or 7%, annually.

Exhibit 3
Issuances Receiving Federal Fund Appropriations and Reductions Attributable to Federal Sequestration
Fiscal 2017-2019
($ in Thousands)

Fiscal Year	**2017**	**2018**	**2019**	**Total**
July 2009 Build America Bonds	$796	$796	$796	$2,389
October 2009 Build America Bonds	942	942	942	2,825
February 2010 Build America Bonds	6,036	6,036	6,036	18,108
July 2010 Build America Bonds	1,094	1,094	1,094	3,281
July 2010 Qualified School Construction Bonds	1,965	1,965	1,965	5,895
December 2010 Qualified Zone Academy Bonds	228	228	228	684
August 2011 Qualified Zone Academy Bonds	660	660	660	1,980
August 2011 Qualified Energy Conservation Bonds	234	234	234	703
August 2012 Qualified Zone Academy Bonds	426	426	426	1,279
Less Sequestration	*-849*	*-854*	*-904*	*-2,607*
Total	**$11,532**	**$11,527**	**$11,477**	**$34,536**

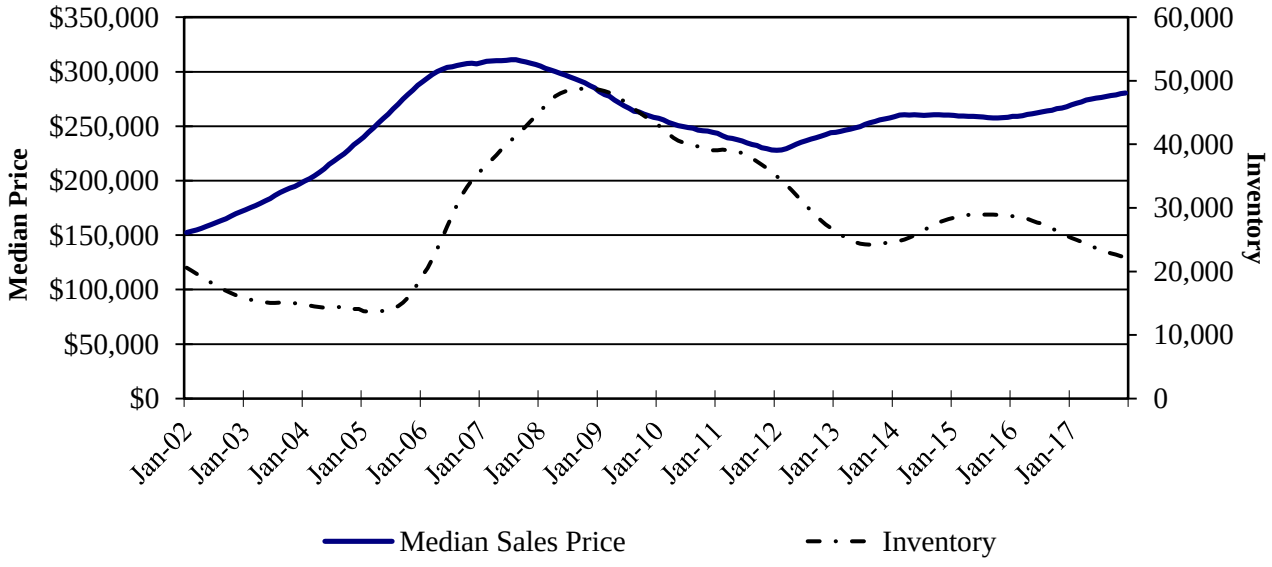
Source: Comptroller's Office; State Treasurer's Office; Department of Budget and Management; Department of Legislative Services

Annuity Bond Fund Six-year Forecast

GO bond debt service costs are supported by the ABF. The fund's largest revenue source is the State property tax. In April 2006, the State property tax rate was set at $0.112 per $100 of assessable base and has remained at that level since fiscal 2007. Other revenue sources include proceeds from bond sale premiums, interest and penalties on property taxes, and repayments for local bonds. When the ABF has not generated sufficient revenues to fully support debt service, general funds have subsidized debt service payments.

State property tax collections are influenced by trends in the housing market. **Exhibit 4** shows that there was a substantial increase in real estate values, which peaked in summer 2007, followed by a decline in values. The year-over-year decline began in July 2007 and continued until February 2012. That was 55 straight months of year-over-year declines in median home values. From February 2012 to March 2014, year-over-year prices increased. After a period without increases, home values have tended to increase since November 2015. Inventories went through a similar increase and decline. However, they lagged behind the pattern seen in home prices for much of the period. Recently, there has been a dip in inventories and home prices have increased.

Exhibit 4
Maryland Housing – Median Prices and Inventory
12-month Moving Average
January 2002 to December 2017

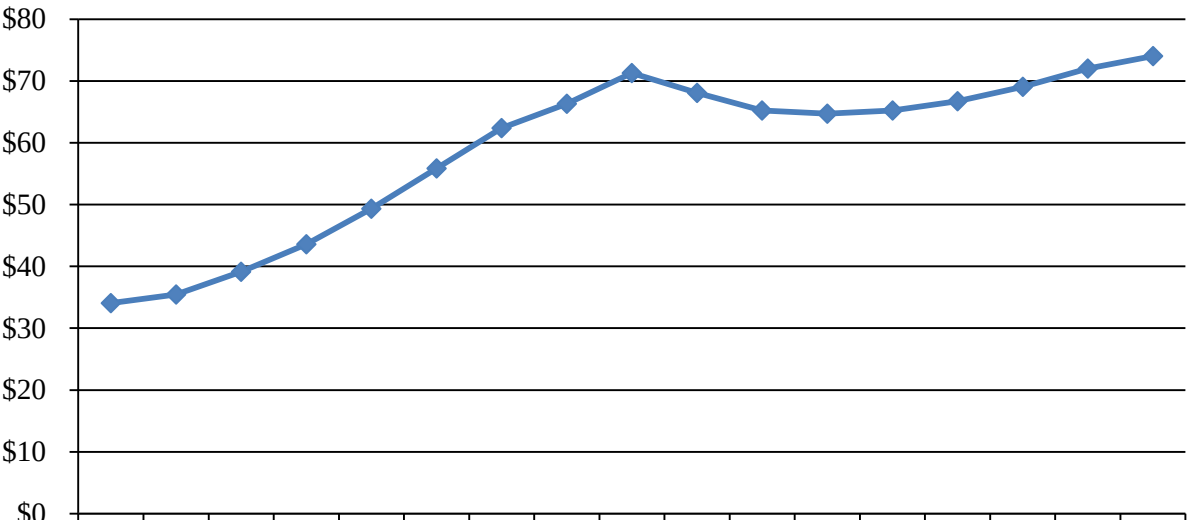


Note: Inventory represents housing units for sale according to Metropolitan Regional Information Systems, Inc. and Coastal Association of Realtors.

Source: Maryland Association of Realtors; Department of Legislative Services

As expected, the rising property values from fiscal 2002 to 2007 increased State property tax receipts. **Exhibit 5** shows how much revenue that one cent on the State property tax has generated since fiscal 2003. From fiscal 2004 to 2011, the increases were quite steep. Revenues declined from fiscal 2011 to 2014 and increased in fiscal 2015, 2016, and 2017. Recent estimates expected revenues to increase about 1% in the out-years. The State Department of Assessments and Taxation revised its estimates in November 2017. Revenues are now expected to increase at a rate of 2% annually between fiscal 2017 and 2023.

Exhibit 5
Revenues Generated by One Cent of State Property Taxes
Fiscal 2003-2019
($ in Millions)



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenues	$34	$35	$39	$44	$49	$56	$62	$66	$71	$68	$65	$65	$65	$67	$69	$72	$74

Source: State Department of Assessments and Taxation; Department of Budget and Management; Department of Legislative Services

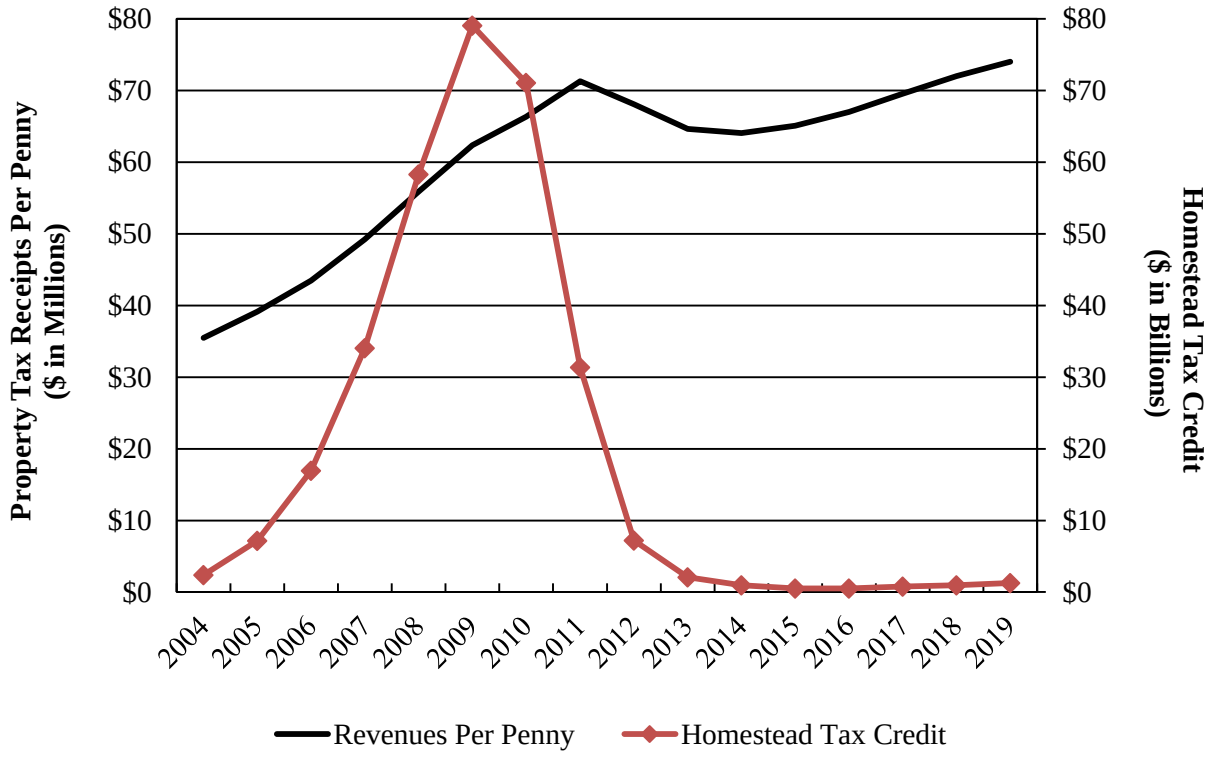
Assessment policies and the Homestead Tax Credit account for the lag between changes in the real estate market and tax receipts. Property values are assessed every three years, and increases are phased in over three years. For example, if a property's value increases by 9%, the increase would be 3% in the first year, 6% in the second year, and 9% in the third year.

The Homestead Tax Credit limits the annual increase in State property assessments subject to the property tax to 10%. If reassessing a resident's assessed property value results in an increase that exceeds 10%, the homeowner receives a credit for any amount above 10%. This limits revenue growth when property values rise quickly. Taken together, the three-year assessment process and the

Homestead Tax Credit slowed the revenue increases and delayed the peak until after the decline in property values.

The homestead credit also provides the State with a hedge against declining property values. As home values declined, the homestead credit declined, and revenues continued to slowly increase. The result smoothed State revenues; State property tax revenue growth was slower as home values increased, and there was a small decline in revenues when home values decreased. **Exhibit 6** shows that State credits increased to $79.1 billion in fiscal 2009 in response to increases in assessments. Since fiscal 2014, the aggregate homestead credits have been under $1 billion each year until fiscal 2019, when they are projected to increase to $1.1 billion. The exhibit also shows that property tax revenues continued to increase after the housing market rebounded.

Exhibit 6
State Property Tax Homestead Tax Credits and Property Tax Receipts
Fiscal 2004-2019

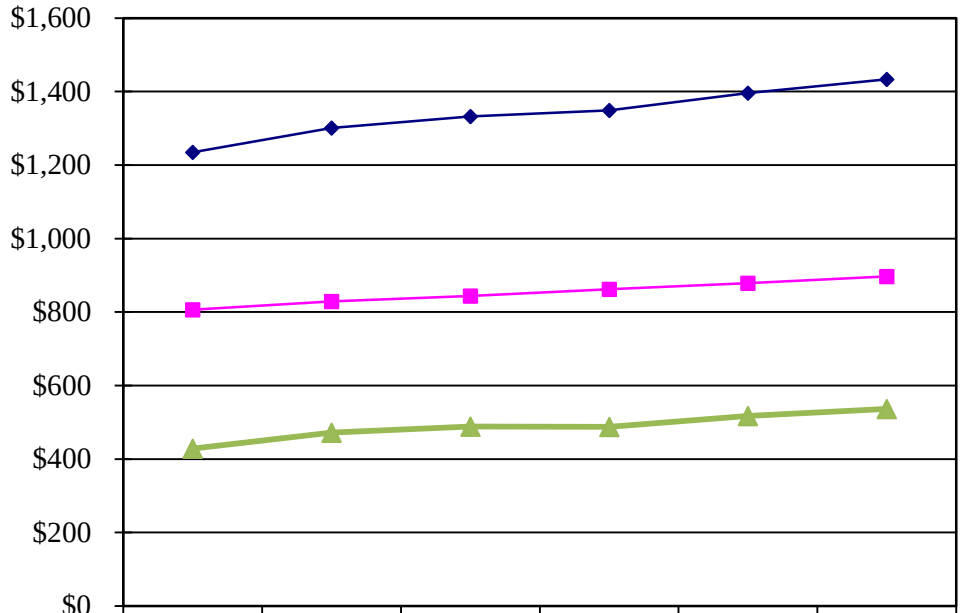


Source: State Department of Assessments and Taxation

Over the next few years, State property tax revenues are estimated to remain fairly flat, increasing at a rate of 2.1% annually from fiscal 2018 to 2023. This contrasts with debt service costs, which are

expected to increase at a rate of 3.0% annually over the same period. **Exhibit 7** shows how State property tax revenues, which are $429 million less than debt service costs in fiscal 2018, are expected to be $537 million less than debt service costs in fiscal 2023.

Exhibit 7
GO Bond Debt Service Costs and State Property Tax Revenue Collections
Fiscal 2018-2023
($ in Millions)



	2018	2019	2020	2021	2022	2023
State Property Tax Receipts	$806	$829	$844	$862	$879	$896
GO Bond Debt Service Costs	$1,235	$1,301	$1,332	$1,349	$1,396	$1,433
Difference	$429	$471	$488	$487	$517	$537

GO: general obligation

Source: Department of Legislative Services, January 2018

Before fiscal 2014, the shortfall in State property tax receipts was not a problem because the ABF had a large fund balance. This fund balance was largely attributable to the low interest rates offered for AAA-rated State and municipal bonds. These low interest rates have reduced GO bonds' true interest cost (TIC), resulting in higher bond sale premiums. These premiums have been deposited into the ABF to support debt service costs.

Exhibit 8 shows the DLS estimate of fiscal 2019 to 2023 ABF activity. The most significant trend is a decline in projected premiums, as estimates decline from $151 million in fiscal 2018 to no premiums by fiscal 2021. General fund appropriations are required for fiscal 2019 despite the availability of $161 million in fund balance at the end of fiscal 2018 and an estimated $58 million in bond sale premiums in fiscal 2019. DLS projects that fiscal 2019 will end with a $58 million fund balance if $289 million in general funds are appropriated in fiscal 2019. General fund appropriations are projected to increase to $519 million in fiscal 2023.

Exhibit 8
Revenues Supporting Debt Service
Fiscal 2018-2023

	2018	2019	2020	2021	2022	2023	Average Annual % Change
Special Fund Revenues							
State Property Tax Receipts	$806	$829	$844	$862	$879	$896	2.1%
Bond Sale Premiums[1]	151	58	11	0	0	0	-100.0%
Other Revenues	2	2	2	2	2	2	0.0%
ABF Fund Balance Transferred from Prior Year	156	161	58	1	1	1	-62.7%
Subtotal Special Fund Revenues	***$1,115***	***$1,051***	***$915***	***$865***	***$883***	***$900***	***-4.2%***
General Funds	260	289	400	468	498	519	14.9%
Transfer Tax Special Funds[2]	7	7	7	7	7	7	0.7%
Federal Funds[3]	12	11	11	10	9	8	-6.1%
Total Revenues	**$1,393**	**$1,358**	**$1,333**	**$1,350**	**$1,397**	**$1,434**	**0.5%**
Debt Service Expenditures	**$1,235**	**$1,301**	**$1,332**	**$1,349**	**$1,396**	**$1,433**	**3.0%**
ABF End-of-year Fund Balance	**$161**	**$58**	**$1**	**$1**	**$1**	**$1**	**-64.7%**

ABF: Annuity Bond Fund

[1] The budget submitted by the Department of Budget and Management estimates $56.7 million bond premiums in March 2018. The Department of Legislative Services' estimates of bond sale premiums are $37.8 million in summer 2018, $20.7 million in winter 2019, and $11.1 million in summer 2019.
[2] This supports $70 million of general obligation bonds issued in 2010 for Program Open Space.
[3] This includes federal interest subsidies for Build America Bonds, Qualified Zone Academy Bonds, Qualified School Construction Bonds, and Qualified Energy Conservation Bonds.

Source: Department of Budget and Management; Department of Legislative Services, January 2018

Issues

1. Capacity Is Sufficient for Modest Increases in Authorizations

The Capital Debt Affordability Committee (CDAC) recommendation is to continue to limit GO bond authorizations to $995 million. CDAC uses two criteria to measure affordability: State debt service cannot exceed 8.0% of State revenues; and State debt outstanding cannot exceed 4.0% of personal income. Under these criteria, this level of authorization is affordable. Under this limit, debt service peaks at 7.78% of revenues, and debt outstanding peaks at 3.54% of personal income.

In December 2017, the Spending Affordability Committee (SAC) recommended that GO bond authorizations be limited to $1,075 million in fiscal 2019 and that subsequent increases be limited to 1%. This approach links increases in authorizations to projected increases in the major revenue source that supports debt service, which is the State property tax. State property tax revenues are projected to increase at a rate of 2%. Costs are contained at a rate of growth that does not exceed projected increases in the revenues that support them.

Exhibit 9 shows that this level of authorization is affordable. Debt service to revenues peaks at 7.81% in fiscal 2022. Debt service costs increase slightly at first. As the program ramps up, costs increase at a higher rate.

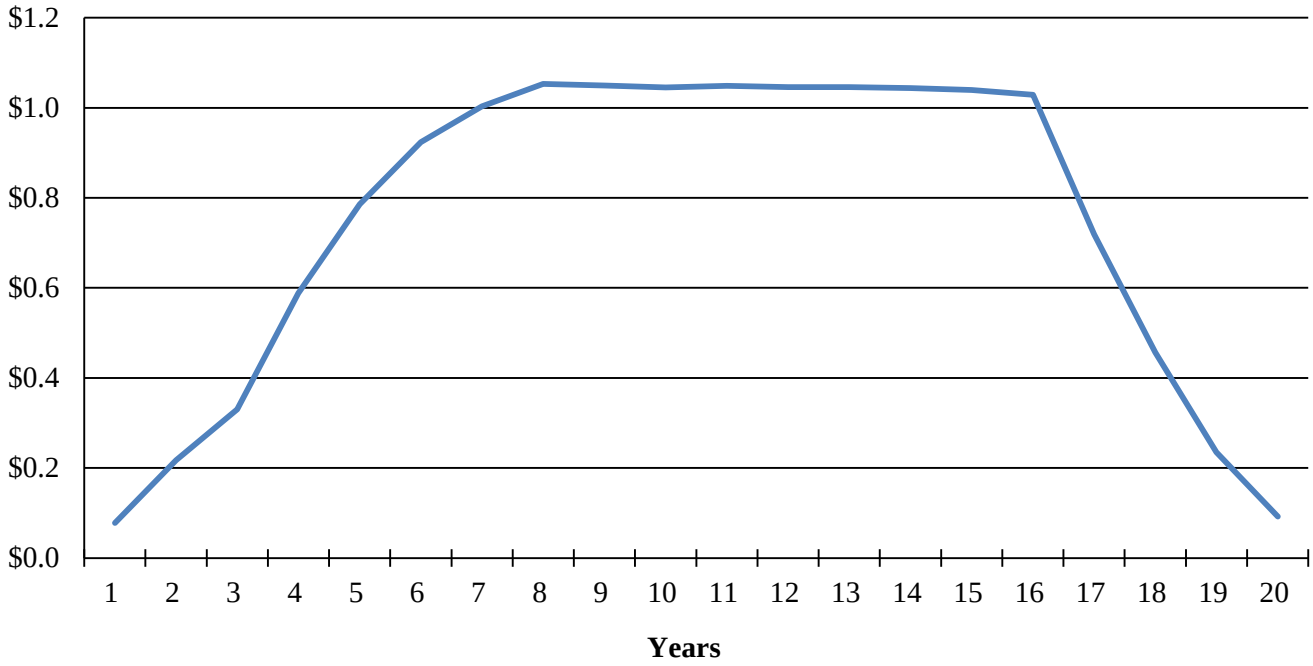
Exhibit 9
Impact of 2017 Spending Affordability Committee Recommendations on Debt Service and Affordability Ratios
Fiscal 2018-2023
($ in Millions)

Year	Authorization	Additional Debt Service	Debt Service to Revenues	Debt Outstanding to Personal Income
2018	$1,065	$0	7.77%	3.50%
2019	1,075	0	7.80%	3.50%
2020	1,085	2	7.67%	3.44%
2021	1,095	5	7.65%	3.34%
2022	1,105	10	7.81%	3.27%
2023	1,115	17	7.81%	3.21%

Source: Department of Legislative Services, February 2018

Increasing authorizations by 1% results in a $10.0 million annual increase in authorizations for 8 years. **Exhibit 10** shows that once all $10.0 million bonds are issued, annual debt service costs peak at $1.05 million for a period of about 10 years.

Exhibit 10
Total Cost of Authorizing $10 Million in Bonds
($ in Millions)



Source: Department of Legislative Services, November 2016

State debt is not limited to GO bonds. **Exhibit 11** shows that fiscal 2018 total State debt service payments are projected to total about $1.8 billion. Current State debt policies vary depending on the kind of debt. CDAC's policy is to strictly limit GO bond authorizations to $995 million. The policy for the transportation program is exactly the opposite. The transportation debt program is fully leveraged so that its net revenues are 2.5 times debt service, which is management's coverage limit.[1] With respect to the Maryland Stadium Authority, it is State policy to issue bonds supported by lottery revenues instead of general funds. Since lottery revenues are not a tax, bonds issued from lottery revenues do not need to be classified as State debt. This does not reduce any liability, it merely shifts it to non-State revenues.

[1] The covenant is that coverage will not fall below 2.0. It is a longstanding Maryland Department of Transportation policy to keep it at 2.5 to avoid a breach of covenant if revenues underperform or spending exceeds projections.

Exhibit 11
Amount of Debt Service Attributed to Types of State Debt
($ in Millions)

Type of Debt	Fiscal 2019 Debt Service	Share of Debt Service	Current Policy
GO Bonds	$1,301	72.0%	CDAC limits debt to $995 million indefinitely; SAC increases authorizations by 1% annually
Transportation Bonds	336	18.6%	Maximum leverage so that coverage ratios are at their limit
GARVEEs	87	4.8%	Legislation authorized only this issuance
Bay Restoration Bonds	32	1.8%	Expand the type of nutrient removal programs that qualify, allowing projects previously funded with GO bonds to be funded with Bay Bonds
Capital Leases	26	1.4%	Issue when needed
Stadium Authority Bonds	25	1.4%	Issue less State debt and instead issue debt from lottery proceeds
Total	**$1,807**	**100.0%**	

CDAC: Capital Debt Affordability Committee
GARVEE: Grant Anticipation Revenue Vehicles
GO: general obligation
SAC: Spending Affordability Committee

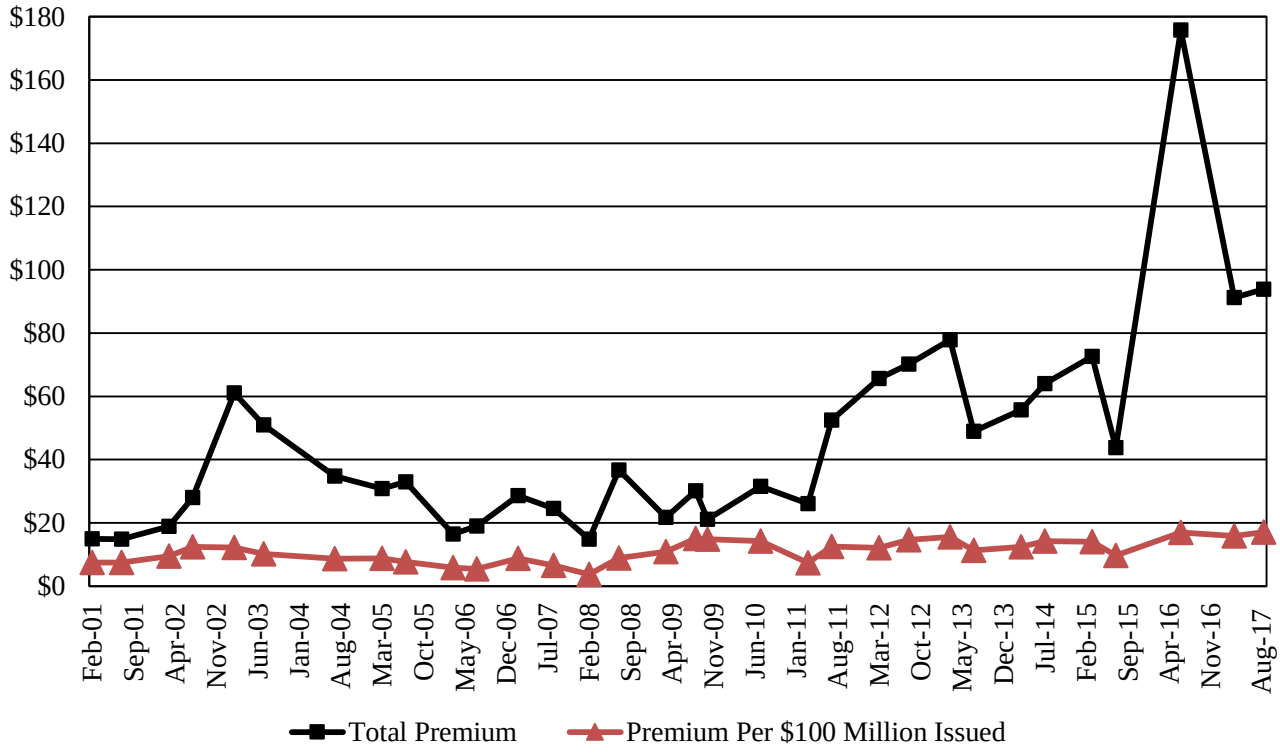
Source: Department of Budget and Management, January 2018; Department of Legislative Services

2. GO Bonds Continue to Sell at a Premium

As introduced, the budget assumes that the March 2018 bond sale will sell at a premium that totals $56.7 million, after deducting the cost of issuance and the underwriter's discount. **Exhibit 12** shows that every tax-exempt GO bond sale since fiscal 2002 has sold at a premium. Premiums realized have ranged between $15 million and $176 million. This variation is primarily attributable to the amount of bonds sold. Since fiscal 2002, premiums have ranged between $5 million and $17 million per $100 million issued. All tax-exempt bonds sold since February 2001 have sold at a premium. Unless there is a substantial, unexpected change in market conditions, the upcoming GO bond issuance

is expected to sell at a premium. Under current conditions, the question is not if, but how much. **Appendix 3** provides a discussion of economic factors influencing bond sale premiums.

Exhibit 12
Bond Sale Premiums
February 2001 to August 2017
($ in Millions)



Source: State Treasurer's Office; Department of Legislative Services

Section 8-125 of the State Finance and Procurement Article limits the use bond proceeds so that the premiums may only be used to pay debt service costs and may not be used to expand the capital program. Instead, premiums are deposited into the ABF to support debt service. It has been State policy only to estimate premiums for bonds sold before the end of the legislative session in which the budget is introduced. Since the upcoming GO bond sale is in March 2018, which is before the 2018 legislative session ends on April 9, the budget assumes a premium.

Using the same methodology to project a premium with the March 2018 bond sale, DLS projects that current market conditions are such that bonds sold in fiscal 2019 will also generate premiums. But because these bonds are issued after the 2018 legislative session, the budget does not assume any premiums.

Although the budget does not project premiums in the budget year, DLS has projected premiums each fall for SAC. DLS projections have tended to underestimate actual bond sale premiums. **Exhibit 13** shows that DLS projected $301 million in premiums from fiscal 2014 through 2018. Over the same period, DBM's budget has not projected any premiums. But actual premiums are significantly greater than DLS projected. So there is a sizable increase to special fund revenues in the ABF during each fiscal year as unbudgeted premiums are realized. For example, $91 million in unbudgeted bond sale premiums were realized during fiscal 2017. This is a key reason why the ABF ended fiscal 2017 with a $156 million closing balance.

Exhibit 13
Projected and Actual Bond Sale Premiums
Fiscal 2014-2018
($ in Millions)

Fiscal Year	DLS Projections	Actual Premiums	Difference
2014	$105.1	$104.7	-$0.4
2015	59.4	142.8	83.4
2016	55.2	219.5	164.3
2017	32.3[1]	91.2	58.9
2018	48.6	93.9[2]	45.3
Total	**$300.6**	**$652.1**	**$351.5**

DLS: Department of Legislative Services

[1] DLS models projected $32.3 million in premiums, but the forecast did not include any premiums.
[2] This is only for the summer bond sale. The second fiscal 2018 bond sale is the upcoming March 2018 bond sale.

Source: Department of Legislative Services

Exhibit 13 also demonstrates how difficult it is to project bond sale premiums. In most years, the actual premiums are many times more than projected premiums. This is because small fluctuations in interest rates can substantially increase or decrease premiums. DLS estimates that a 0.25% (25 basis points) change in interest rates results in a $12 million change in the bond sale premium. Further complicating estimates is the volatility in interest rates. Consequently, bond sale premiums should be projected cautiously.

The State has been consistently realizing GO bond sale premiums since 2001 and DLS has been cautiously projecting premiums. To estimate a premium, DLS follows these steps:

- ***Estimate the TIC:*** To estimate the TIC, DLS uses the interest rate projections from Moody's Economy.com and IHS Global Insight for the 10-year U.S. Treasury Bill. DLS uses the 10-year

interest rate projections since the average maturity for State bonds is usually just under 10 years. These two rates are averaged. This average adjusts the TIC of the most recent bond sale to reflect changes in interest rates over time. For example, if the rates are expected to increase 1.00% (100 basis points) in one year, the projected TIC of the bond sale one year later would be 1.00% (100 basis points) higher than the most recent sale's TIC.

- ***Project the Coupon Rate:*** DLS computes the average coupon rate of recent bond sales. This has been hovering around 4.25% in recent years; the most recent issuance had an average coupon rate of 4.29%.

- ***Use the TIC, Coupon Rate, and Amount Issued to Estimate Premiums:*** For each expected sale, DLS prepares an amortization table and calculates the premiums based on the present value of the cash flows.

Even after accounting for rising interest rates, current market conditions are consistent with subsequent bond issuances selling at a premium. Recognizing premiums would improve the budget process by acknowledging anticipated ABF revenues when the budget is being prepared. **DLS recommends that the fiscal 2019 budget forecast anticipate $55 million of bond sale premiums. In recognition of bond market volatility, DLS recommended that projected bond sale premiums be classified as targeted reversions. It is recommended that the General Assembly add budget bill language requiring that all available special and federal funds are expended before general funds are expended and that unspent general funds revert to the General Fund. The language should also authorize a budget amendment to add any bond premium realized in fiscal 2018 and 2019 in excess of the amount assumed in the allowance.**

3. Federal Tax Law Changes Are Expected to Increase Capital Program Costs

On December 22, 2017, President Donald J. Trump signed the federal Tax Cuts and Jobs Act. This new law enacts broad changes to federal tax laws that were effective on January 1, 2018. It has been less than two months since the law was enacted, and there have not been many bond sales since the law was enacted, making it difficult to project the impact on costs. The new law has some provisions that will impact GO bonds and the cost of the State's capital program. Specifically, there are three provisions that are expected to affect the State's GO bond program. In all cases, the effect is to increase costs. This issue examines the new law's impact on GO bonds supporting the State's capital program.

Effect of Reducing Taxes on the State and Municipal Bond Market

Most State GO bonds issued by the State are tax-exempt bonds. The purchaser of these bonds does not have to pay federal taxes on the bonds' interest earnings. This makes these bonds especially attractive to individuals in high income tax brackets and corporations. This reduced the top bracket on individual taxes from 39.6% to 37% through calendar 2025 and reduces the top corporate income tax

rate from 39% to 21% permanently. Lower tax rates reduce the amount of tax avoided by investing in tax-exempt bonds. This is anticipated to reduce the demand for tax-exempt bonds:

- Financial institutions, like banks and insurance companies, are estimated to own 25% of tax-exempt bonds. These institutions would require a higher interest rate to purchase tax-exempt bonds.

- Some reports note that owners of pass-through entities, such as partnerships and Subchapter S Corporations, may also be less likely to purchase tax-exempt bonds, thereby dampening the demand and driving up prices.

In November 2017, while the tax bill was being debated in Congress, a research and consulting firm estimated that reducing the corporate income tax rate to 20% would increase tax-exempt interest rates by 0.50% to 0.75% (50 to 75 basis points) without considering the effect of other provisions in the bill. Using this as a guide, DLS estimates the effect of these additional costs on the State's most recent bond sale in August 2017, when the State issued $550 million. Since GO bonds sold at a premium, higher rates would not increase debt service costs if interest rates increase. Instead, the higher rates would reduce the premium by $25 million if rates increase by 0.50% and $38 million if the rates increase by 0.75%. The State's premium would have been reduced from $94 million to between $56 million and $69 million, depending on the interest rate increase.[2]

Repealing Advanced Refunding Bonds

The GO bonds that Maryland issues are callable. This means that the State can retire the bonds early. Callable bonds have a call date. This is the earliest date in which a bond can be retired. For example, GO bonds from Maryland's most recent bond issuance are callable after 10 years.

The State can issue refunding bonds at a lower rate than bonds issued previously at a higher rate bonds and then retire the principal that is callable. When doing this, the State replaces higher interest bonds with lower interest bonds.

Until January 1, 2018, federal tax law allowed the State one advanced refunding for every bond sale. Advanced refunding allows the State to issue refunding bonds before the call date. The advantages are:

- ***Savings Can Be Realized Early:*** If the State has a 10-year call, the State cannot take advantage of lower interest rates until 10 years have passed. With advanced refunding bonds, the State can realize savings sooner. For example, at the most recent refunding sale in August 2017, the State issued refunding bonds to redeem $884.5 million in previously issued bonds. The earliest call date for the redeemed bonds was fiscal 2019. Through refunding bonds, the State reduced debt service costs by $9.1 million in fiscal 2018. Under the new law, the State can no longer

[2] When bonds no longer sell at a premium, the effect of increasing interest rates by 0.50% (50 basis points) is to increase debt service costs. This adds $28 million to debt service costs over the 15-year life of a $550 million issuance. The increase is $42 million if rates increase by 0.75%.

realize these savings. Savings from fiscal 2019 to 2022 totaled $25.4 million, most of which would not be achieved without advanced refunding.

- ***Advanced Refunding Bonds Provide a Hedge Against Increasing Interest Rates:*** In the most recent refunding bond sale, the State realized $85.7 million in savings between fiscal 2018 and 2027. As previously mentioned, most of the $34.5 million in savings prior to fiscal 2023 would not have been realized without the ability to issue advanced refunding bonds. Advanced refunding allows states and municipalities to lock into savings if interest rates are low rather than waiting until the bonds are callable and risk a rise in interest rates.

- ***Issuances Can Be Bundled:*** In the most recent refunding sale, the State refunded bonds with call dates ranging from 2019 to 2023. Without the ability to combine all these callable tranches into one issuance, each tranche would need to be refunded individually, requiring nine refunding issuances. This adds to the transaction costs, which reduces savings, and requires additional staff work, which could increase operating costs. Advanced refunding issuances are much more efficient.

Savings attributable to advanced refunding bonds are substantial. **Exhibit 14** shows that debt service costs have been reduced by over $316 million since December 2009. The State can still refund and call bonds without advanced refunding bonds. But without the ability to realize savings early, lock into low interest rates, and bundle issuances, the savings attributable to refunding bonds are substantially less and the process is much less efficient.

Exhibit 14
Debt Service Cost Savings Attributable to Bond Refunding
December 2009 to August 2017
($ in Millions)

Date of Sale	Amount Issued	Amount Retired	Savings	Net Present Value of Savings
December 2009	$602.8	$606.3	$25.8	$24.9
February 2010	195.3	200.4	9.3	8.6
September 2011	254.9	264.6	12.6	11.1
March 2012	138.4	140.7	12.6	10.2
August 2012	183.8	194.5	18.7	16.1
March 2013	165.1	168.7	10.0	8.1
March 2014	236.9	245.9	14.2	12.6
July 2014	649.7	695.2	69.2	58.3
March 2015	365.4	369.7	29.0	21.8
March 2017	465.7	490.3	29.0	24.2
August 2017	785.3	884.5	85.7	75.8
Total	**$4,043.3**	**$4,260.7**	**$316.2**	**$271.8**

Source: Public Financial Management, Inc.; Public Resources Advisory Group; Department of Legislative Services

Repealing Tax Credit Bonds

In addition to tax-exempt GO bonds, the State has also taken advantage of federal programs that allow the State to issue bonds whereby the buyers can receive federal tax credits or the State will receive a direct payment to offset interest costs. Most recently, the federal government has authorized QZABs. These bonds are issued in the place of traditional tax-exempt GO bonds.

To date, the State has issued $107 million in QZABs. **Exhibit 15** shows that DLS estimates that the lower costs associated with these bonds reduced total debt service payments by $42 million. However, some of these bonds are affected by federal sequestration reductions, which reduce the savings by $1 million. These bonds have been de-authorized. The last Maryland QZAB was issued on December 15, 2017.

Exhibit 15
Qualified Zone Academy Bond Issuances: RIP
Fiscal 2002-2018
($ in Millions)

Date Issued	Amount Issued	Debt Service Payments	Payments	Similar GO Bond Payments[1]	Savings	Sequestration Reduction	Net Savings
Nov. 2001	$18,098	$0	$12,432	$27,182	$14,750	$0	$14,750
Nov. 2004	9,043	0	7,356	12,393	5,038	0	5,038
Dec. 2006	4,378	0	3,609	6,132	2,523	0	2,523
Dec. 2007	4,986	0	4,089	6,967	2,877	0	2,877
Dec. 2008	5,563	6,142	6,142	7,606	1,464	0	1,464
Dec. 2009	5,563	6,275	6,275	7,052	778	0	778
Dec. 2010	4,543	0	4,474	5,302	828	-179	649
Aug. 2011	15,900	15,900	15,900	20,267	4,367	-518	3,849
Aug. 2012	15,230	15,230	15,230	18,303	3,073	-334	2,739
Dec. 2013	4,549	4,549	4,549	5,875	1,326	0	1,326
Dec. 2014	4,625	4,625	4,625	5,971	1,346	0	1,346
Dec. 2015	4,625	4,625	4,625	5,971	1,346	0	1,346
Dec. 2016	4,680	4,680	4,680	5,926	1,246	0	1,246
Dec. 2017	4,823	4,823	4,823	6,156	1,333	0	1,333
Total	**$106,606**	**$66,848**	**$98,808**	**$141,104**	**$42,296**	**-$1,032**	**$41,264**

GO: general obligation
RIP: Rest in Peace

[1] Similar GO bond payments vary over time because interest rates vary. The analysis uses the GO bond true interest cost at the time that the debt is issued.

Note: Numbers may not sum to total due to rounding.

Source: Comptroller of Maryland; State Treasurer's Office; Department of Legislative Services

The State Treasurer should be prepared to brief the committees on the effect of federal tax law changes on capital costs.

4. Accounting Changes to Leasing Standards Could Affect Debt Affordability

When evaluating debt affordability, CDAC evaluates all State debt. Long-term leases are considered debt. Long-term leases funded by tax revenues are considered State debt. Classifying leases as debt, the State applies standards developed by the Governmental Accounting Standards Board (GASB), which is an independent, nonpolitical organization dedicated to establishing rules that require state and local governments to report clear, consistent, and transparent financial information.

Under current guidelines, leases that meet at least one of the following criteria are considered to be capital leases:

- the lease transfers ownership of the property to the lessee by the end of the lease term;
- the lease allows the lessee to purchase the property at a bargain price at a fixed point in the term of the lease for a fixed amount;
- the term of the lease is 75% or more of the estimated economic useful life of the property; and/or
- the present value of the lease payments is 90% or more of the fair value of the property.

Many leases that the State enters into are not considered to be capital leases. Even if the leases represent long-term commitments to make payments, no liabilities are reported. Similarly, no assets are reported on many leases, even if the State has long-term rights to receive operating lease payments.

In 2013, GASB initiated a project to reexamine issues associated with lease accounting. The objective of the project is to examine whether operating leases can meet the definitions of assets or liabilities, which could result in new standards for capital leases. A concern is that the current approach to operating leases undervalues liabilities. For example, there are a number of operating leases that include long-term commitments to make payments, but no liabilities are reported.

An exposure draft was issued in January 2016. This was followed by a comment period that ended in May 2016. A public hearing was held in June 2016. After the comment period, redeliberations began in August 2016. GASB unanimously approved Statement 87 that redefines lease rules. The requirements of the proposed statement would be effective for reporting periods beginning after December 15, 2019, with earlier application permitted.[3] This affects fiscal 2021.

The new rules require government lessees to recognize a lease liability and an intangible asset representing their right to use the leased asset, with limited exception. Lessees would amortize the

[3] One of the changes to the draft was to delay the effective data from December 15, 2018, to December 15, 2019.

leased asset over the term of the lease and recognize interest expense related to the lease liability. The exposure draft provides exceptions for short-term leases lasting 12 months or less, along with financed purchases.

The new rules would increase the amount of capital leases, but it is unclear to what extent. The *Comprehensive Annual Financial Report*[4] for fiscal 2017 reports that rent expenditures totaled $94 million in fiscal 2017. By contrast, capital lease expenditures reported by CDAC totaled $27 million in fiscal 2017.

Changes in lease accounting standards could affect State debt affordability. State agencies should begin to review how the new rules will affect State-supported capital leases. **It is recommended that the committees adopt narrative that requires State agencies to report on new accounting standards that affect State-supported leases in excess of 12 months that could have to be reported as capital leases.**

[4] See note 17, page 110.

Operating Budget Recommended Actions

1. Add the following language:

   Provided that no general funds may be expended on debt service until all available special and federal funds are expended. The Governor is hereby authorized to process a budget amendment in fiscal 2019 to recognize any bond premium revenues in excess of current projections for fiscal 2018 and 2019. Any unspent general funds shall revert to the General Fund at the close of fiscal 2019.

   Explanation: General obligation bonds have consistently sold at a premium since fiscal 2002. Market conditions are consistent with realizing at least $55 million in additional premiums in fiscal 2019 that have not been budgeted. In recognition of these projected premiums, this language requires that no general funds can be expended until all available special and federal funds have been spent. The language also requires that unspent general funds revert to the General Fund at the end of fiscal 2019.

2. Adopt the following narrative:

   Examine Effect of New Accounting Standards on State Capital Leases: The Governmental Accounting Standards Board has updated accounting standards for capital leases. New rules require government lessees to recognize a lease liability that exceeds 12 months. The new rules will increase the amount of capital leases, but it is unclear to what extent. The Comprehensive Annual Financial Report for fiscal 2017 reports that rent expenditures totaled $94 million in fiscal 2017. By contrast, capital lease expenditures reported by the Capital Debt Affordability Committee totaled $27 million in fiscal 2017. Changes in lease accounting standards could affect State debt affordability. State agencies, including the Department of Budget and Management (DBM), the Department of General Services (DGS), and the Maryland Department of Transportation (MDOT) should begin to review how the new rules will affect State-supported capital leases. This report should be coordinated by DBM and completed by January 15, 2019.

Information Request	**Authors**	**Due Date**
Examine effect of new accounting standards on State capital leases	DBM DGS MDOT	January 15, 2019

Appendix 1
Current and Prior Year Budgets
Public Debt
($ in Thousands)

	General Fund	Special Fund	Federal Fund	Reimb. Fund	Total
Fiscal 2017					
Legislative Appropriation	$283,000	$892,640	$11,539	$0	$1,187,179
Deficiency Appropriation	-23,605	27,160	0	0	3,555
Cost Containment	0	0	0	0	0
Budget Amendments	0	0	0	0	0
Reversions and Cancellations	0	0	-6	0	-6
Actual Expenditures	**$259,395**	**$919,800**	**$11,533**	**$0**	**$1,190,728**
Fiscal 2018					
Legislative Appropriation	$259,649	$975,867	$11,539	$0	$1,247,055
Cost Containment	0	0	0	0	0
Budget Amendments	0	0	0	0	0
Working Appropriation	**$259,649**	**$975,867**	**$11,539**	**$0**	**$1,247,055**

Note: The fiscal 2018 appropriation does not include deficiencies, targeted reversions, or across-the-board reductions. Numbers may not sum to total due to rounding.

Fiscal 2017

Fiscal 2017 actual Public Debt expenditures were $1,190.7 million, which is $3.6 million more than budgeted. These additional costs are attributable to changes to bond sale issuances in fiscal 2016 and 2017. In recent years, the State has issued approximately $500.0 million in the winter and another $500.0 million in July or August. The winter bond sale requires two debt service payments in the next fiscal year, and the summer bond sale requires one debt service payment. Instead, $1,036.0 million was issued in June 2016. By moving $518.0 million into June, the sale now requires an additional debt service payment in fiscal 2017. The State will benefit by retiring these bonds early, which reduces the fiscal 2032 debt service payment by $54.1 million.

The increase was offset by the low coupon rate, which was 4.15%. The budget assumed a higher 5.00% coupon rate. The bond sale premium was also greater than anticipated, which allowed the State to reduce general fund appropriations by $23.6 million. Since total debt service costs increased, additional special fund appropriations totaling $27.2 million were added. These changes were included as deficiency appropriations attached to the fiscal 2018 budget.

Changes to federal funds attributable to sequestration resulted in a federal fund reversion totaling $6,305.

Fiscal 2018

There have not been any budget amendments in fiscal 2018.

Appendix 2
Fiscal Summary
Public Debt

Program/Unit	FY 17 Actual	FY 18 Wrk Approp	FY 19 Allowance	Change	FY 18 - FY 19 % Change
01 Redemption and Interest on State Bonds	$ 1,190,727,702	$ 1,247,055,130	$ 1,305,831,083	$ 58,775,953	4.7%
Total Expenditures	**$ 1,190,727,702**	**$ 1,247,055,130**	**$ 1,305,831,083**	**$ 58,775,953**	**4.7%**
General Fund	$ 259,395,129	$ 259,648,777	$ 289,000,000	$ 29,351,223	11.3%
Special Fund	919,799,709	975,867,184	1,004,000,000	28,132,816	2.9%
Federal Fund	11,532,864	11,539,169	12,831,083	1,291,914	11.2%
Total Appropriations	**$ 1,190,727,702**	**$ 1,247,055,130**	**$ 1,305,831,083**	**$ 58,775,953**	**4.7%**

Note: The fiscal 2018 appropriation does not include deficiencies, targeted reversions, or across-the-board reductions. The fiscal 2019 allowance does not include contingent reductions or cost-of-living adjustments.

Appendix 3
Economics of Bond Sale Premiums

When bonds are sold, they have a par value (principal) and a coupon rate (interest rate paid to the bondholder based on par value). When the bonds are bid, the Treasurer's Office determines how many bonds are sold (par value of the bonds) and when the bonds mature. The underwriter determines the coupon rate (interest rate the issuer pays) and the sale price of the bonds, which is awarded to the underwriter with the lowest interest cost. If the coupon rate is greater than the market rate, the bonds sell at a premium and the State's bond proceeds exceed par value of the bonds.

For example, at the bond sale in July 2015, the State issued $450 million in tax-exempt general obligation bonds (par value). The average coupon rate was 3.92%, and the true interest cost (TIC) (market interest rate) was 2.83%. Since the coupon rate exceeded the market interest rate, the bonds sold at a premium, and total bond proceeds totaled $494 million (after deducting the underwriters discount and cost of issuance expenses). This additional $44 million is the bond premium.

Why Do Bonds Sell at a Premium?

Economic theory tells us that in a world without uncertainty, there will be no difference in value between bonds selling at a high coupon rate or bonds selling at a low coupon rate. If bonds sell at a high coupon rate, the seller receives a large premium that offsets the high interest cost.

However, we do live in an uncertain world. Investors may see advantages in purchasing bonds at a premium. For investors of Maryland bonds, the primary risk is that the bonds will lose value if interest rates rise. Since Maryland bonds offer a fixed interest rate, the value of Maryland bonds decline if interest rates rise.

How investors value bonds is relative and depends on what interest rates the market offers. If low-risk rates such as U.S. government bonds are low, the State will be able to issue bonds at a lower rate than if these interest rates are high. In other words, a 2% interest rate can be a good deal if everyone else is offering less than 2%, but it is not such a good deal if everyone else is offering 3% or more.

In the current environment, interest rates are more likely to increase than decrease. Interest rates are historically low. According to data from the Federal Reserve Board, the yield on 10-year treasury notes on Friday, June 10, 2016 (the time of the most recent bond sale), was among the lowest since 1962. In fact, only 21 out of 2,840 weeks had lower interest costs; over 99% of the time, interest rates were higher than at the time of the last bond sale. In this environment, it certainly makes sense for investors to protect themselves against rising interest rates, and this is done by purchasing bonds at a premium.

The table examines a tranche of $36,125,000 in bonds sold with an eight-year maturity in the July 2015 bond sale. The top half of the exhibit compares the return if an investor buys bonds at par and at a premium. It shows that paying $6,080 and getting a 5.0% interest rate yields the same return as paying $5,000 and getting a 2.06% interest rate, since the TIC for both is 2.06%. The bottom half shows what happens if market interest rates increase. In both examples, the bonds are worth less. The difference is

that bonds sold at a premium lost 17.8% of their value, while bonds selling at par lost 19.2% of their value. For investors that are intent on preserving wealth or cash, this matters.

Effect of Higher Interest Rates on the Value of Bonds

Data from Bond Sale from July 2015 Bond Sale

	Premium Bonds	Sold at Par	Explanation
Par Value of Bonds	$5,000	$5,000	This is the principal you get back
Coupon Rate	5.00%	2.06%	This is the interest rate on the bond's par value
Premium	$1,080	$0	This is what you pay extra for the higher rate
Value at Sale	$6,080	$5,000	This is what you pay
Yield or TIC	2.06%	2.06%	This is what matters, rate of return
If the Market Interest Rate Increases to 5%			
Value at Sale	$6,080	$5,000	This is what you paid for the bonds
Value after Interest Rates Increase	5,000	4,038	This is what your bonds are now worth
Total Loss	-1,080	-962	This is how much you lose due to rate change
Percent Loss	-17.8%	-19.2%	This is what matters, value lost

TIC: true interest cost

Source: Public Financial Management, July 2015; Department of Legislative Services, November 2015

In conclusion, why do bonds sell at a premium? Because buying bonds at a premium is a hedge against increasing interest rates, and it looks like interest rates are going to increase.

Why Should the State Budget Premiums Carefully?

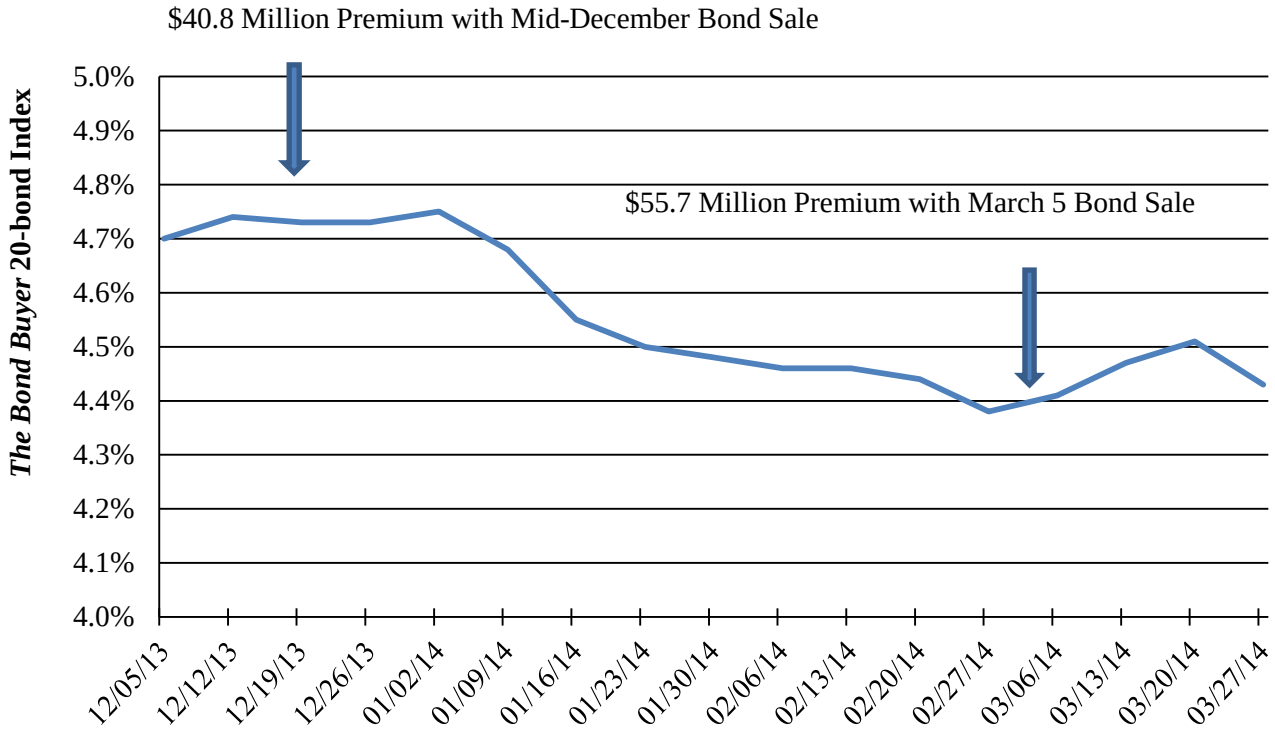
In recent years, bond premiums have been substantial. From fiscal 2012 to 2015, bond sale premiums have generated over $100 million annually. Although premiums are expected to diminish, the Department of Legislative Services (DLS) anticipates that bond sales will continue to generate premiums in fiscal 2017.

A concern with budgeting premiums in advance is that small changes in interest rates can generate substantial changes in the amount of premiums realized. Interest rates have been highly volatile, and rates have climbed or plummeted in a matter of weeks. For example, from April 9 to May 7, 2015, *The Bond Buyer* 20-bond Index increased by 25 basis points, from 3.49% to 3.74%. Such an increase substantially decreases a bond sale premium.

Most of this volatility cannot be foreseen. This means that the key variables used to estimate premiums are impossible to predict with any precision. An example of this is the March 6, 2014 bond sale. The State projected a $40.8 million premium. This forecast was prepared in December 2013 and used in the Governor's fiscal 2015 budget. Using interest rates from December 2013, DLS forecasted a $43.2 million premium. DLS concluded that the premium in the budget was entirely reasonable, based on the data that was available when the budget was prepared.

However, the actual bond sale premium for the March sale was $55.7 million. This is $14.9 million more than Department of Budget and Management (DBM) projected. The reason for this difference is a sudden decline in interest rates. The chart shows that *The Bond Buyer* 20-bond Index declined from over 4.70% in December 2013 to approximately 4.40% in early March 2014. The State benefited from the change by receiving a larger premium.

Timing of Bond Sale Influences Interest Rates and Premiums
December 2013 to March 2014

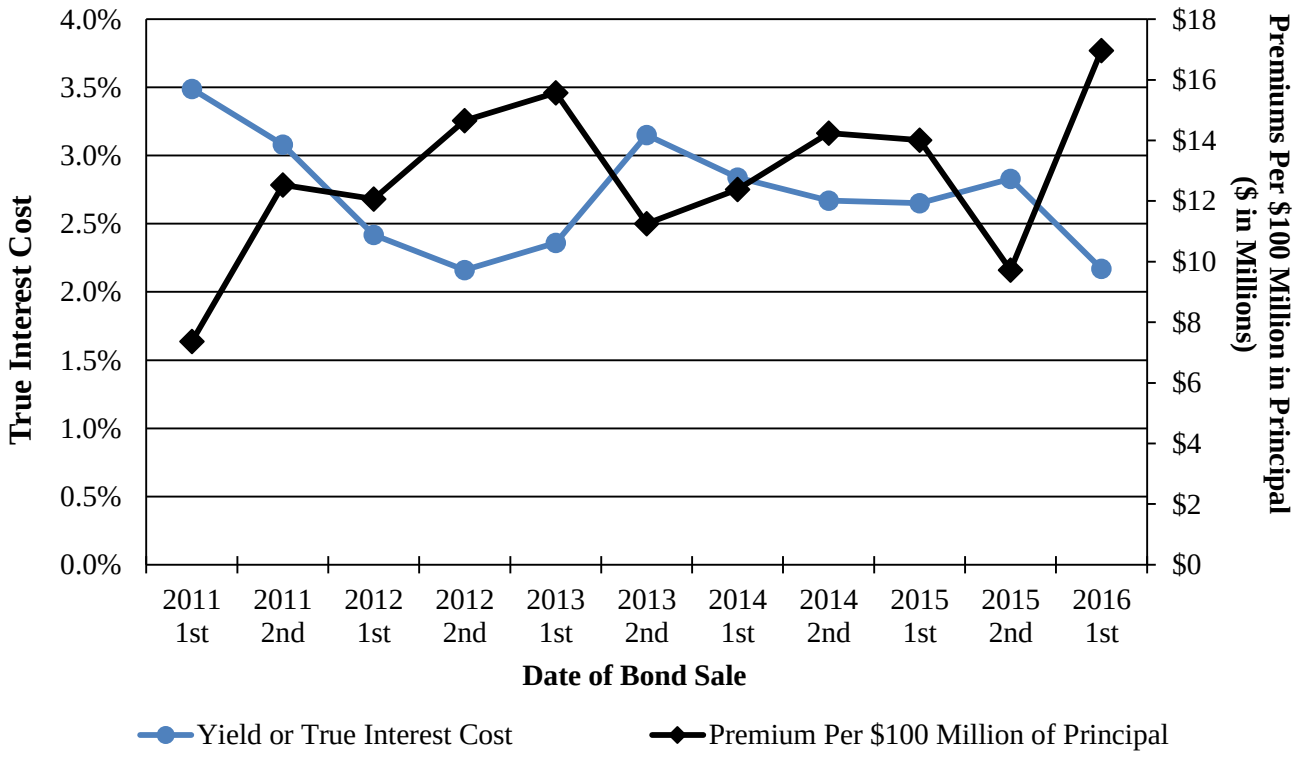


Source: Department of Legislative Services, November 2014

This volatility goes both ways. For example, the State issued bonds on July 24, 2013. There was a sharp increase in interest rates during July 2013. From July 3 to July 25, 2013, the index interest rates increased from 4.39% to 4.77%. This increase of 38 basis points could have substantially decreased a forecasted premium. At the time, premiums were not forecast beyond the spring sale, so it cannot be determined to what extent the higher rates resulted in a smaller premium or higher debt service costs. But the lesson is that large changes in interest rates can happen suddenly.

Another concern is that interest rates are not the only factor that influence bond sale premiums. The chart compares the interest rate for all bond sales since March 2011, with the premium per $100 million of principal realized by those sales. It clearly shows that declining interest rates result in larger premiums. However, a careful look shows that interest rates are not the only factor. For example, even though the lowest interest rate is for the second 2012 bond sale, two bond sales with higher interest rates also had higher premiums (first sale of 2013 and first sale of 2016). Clearly, other factors influence the size of the premium, one of which is the coupon rate that the winning bidder sets, for which there is no reliable methodology to forecast.

Timing of Bond Sale Influences Interest Rates and Premiums
December 2011 to March 2016



Source: Public Financial Management, Inc.; Department of Legislative Services

Last year, Moody's Analytics and IHS Global Insights provided DLS with 10-year federal treasury notes' interest estimates through the end of fiscal 2021 (the ABF forecast period). The estimates diverge sharply. Using these assumptions, DLS prepared a range of estimates for the March 2017 bond sale. The estimates ranged from $3.6 million to $43.8 million. Two points stand out:

- ***The Range Is Big:*** Estimating just a year out can result in a range of estimates in which the high estimate is more than 12 times greater than the low. In this case, the difference is $40.2 million; and

- ***The Estimates Have Been Revised Substantially:*** DBM is estimating that the March 2017 premium will be $68.0 million. The DLS estimate has been revised to $48.2 million. The reason for these changes is that interest rates have not climbed, as was expected. Also, DLS may have been using a lower coupon rate than is currently forecast, which would also depress the amount of premium realized.

Why should the State budget premiums carefully? Because interest rates in this environment are volatile, and even estimates prepared weeks before a bond sale are routinely off by millions of dollars. There are many factors influencing premiums that cannot be forecast accurately.